

(PCT Article 36 and Rule 70)

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/DE2004/002572

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-8 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- nos. _____ as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* 1-9 _____ received by this Authority on 18.10.2005 with telefax
- nos.* _____ received by this Authority on _____
- ☒ the drawings:
- sheets 1/3-3/3 _____ as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1.	Statement		
	Novelty (N)	Claims <u>1-9</u>	YES
		Claims _____	NO
	Inventive step (IS)	Claims <u>1-9</u>	YES
		Claims _____	NO
	Industrial applicability (IA)	Claims <u>1-9</u>	YES
		Claims _____	NO
2.	Citations and explanations (Rule 70.7)		
	<p>1. This report makes reference to the following documents:</p> <p>D1: PROVOST M J ED - INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS: "The more electric aero-engine: a general overview from an engine manufacturer" PROCEEDINGS OF THE 14TH. INTERNATIONAL SYMPOSIUM ON POWER SEMICONDUCTOR DEVICES & ICS. ISPSD'02. SANTA FE, NM, JUNE 4 - 7, 2002, INTERNATIONAL SYMPOSIUM ON POWER SEMICONDUCTOR DEVICES & IC'S, NEW YORK, NY : IEEE, US, 4 June 2002 (2002-06-04), pages 246-251, XP010602915 ISBN: 0-7803-7318-9</p> <p>2. D1 is regarded as the prior art closest to the subject matter of claim 1. It discloses an aircraft engine that implicitly always has at least one stator, at least one rotor and at least one generator for generating electrical energy, a rotor implicitly having</p>		

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	<p>a rotor shaft and rotor discs that are driven by the rotor shaft and have rotating impeller blades, a stator implicitly having a housing and stationary guide blades, a generator implicitly having at least one stator and at least one rotor, and the electrical energy generated by the generator preferably being used to operate at least one attachment device or an ancillary unit of the gas turbine (this is found in all conventional aircraft gas turbines).</p> <p>D1 also discloses the concept of the "More Electric Engine", which has been known for a decade and studied by all large engine manufacturers, and in which magnetic bearings are used for bearing, as generators and as starter motors. Of course, these are necessarily integrated into the interior of the gas turbine in such a manner that the generator rotor is associated with the rotor, and the generator stator is associated with the stator, thereby enabling the kinetic energy of the rotor from the generator to be converted into electrical energy.</p> <p>The subject matter of claim 1 differs from the disclosure in D1 in that the or each generator rotor is associated with the rotor impeller blades, and pole pieces are integrated into the impeller blades or are associated with the radially outer ends of</p>

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	<p>the impeller blades.</p> <p>Therefore, the subject matter of claim 1 is novel (PCT Article 33(2)).</p> <p>The searched prior art does not contain any further suggestion of integrating the pole pieces into the impeller blades, and therefore inventive step is established (PCT Article 33(3)).</p> <p>3. The combination of features contained in dependent claims 2-9 is neither known from nor rendered obvious by the available prior art.</p> <p>4. The subject matter of claims 1-9 is regarded as industrially applicable.</p>

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Box No. VII **Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

1. Contrary to the requirements of PCT Rule 5.1(a)(ii), the description neither cites document D1 nor indicates the relevant prior art contained therein.

2. In claim 8 of the German version, the word "that" is missing after "characterized in".